CHEMICALLY MODIFIED MUTANT SERINE HYDROLASES SHOW IMPROVED CATALYTIC ACTIVITY AND CHIRAL SELECTIVITY

ABSTRACT OF THE DISCLOSURE

This invention provides novel chemically modified mutant serine hydrolases that catalyze a transamidation and/or a transpeptidation and/or a transesterification reaction. The modified serine hydrolases have one or more amino acid residues in a subsite replaced with a cysteine, wherein the cysteine is modified by replacing the thiol hydrogen in the cysteine with a substituent group providing a thiol side chain comprising a moiety selected from the group consisting of a polar aromatic substituent, an alkyl amino group with a positive charge, and a glycoside. In particularly preferred embodiments, the substitutents include an oxazolidinone, a C_1 to C_{15} alkyl amino group with a positive charge, or a glycoside.